



Serial Number 09/681,076
Request for Continuing Examination (RCE)
Wm. Troy Tack
17 January 2003

RECEIVED
JAN 29 2003

RECEIVED
APR 25 2003
GROUP 1700

10/1/2003
04/29/03

RECEIVED
APR 22 2003
TC 1700

NEW CLAIMS:

- 1) A method for producing a lightweight starting stock for gun frames and gun components comprising the following sequence:
 - a) mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
 - b) extruding said billet to provide starting stock,
 - c) forging said starting stock to provide a gun frame or gun component,
 - d) solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
 - e) quenching said gun frame or gun component to provide a quenched gun frame or gun component
 - f) artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.
- 2) The method of claim 1 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.
- 3) The method of claim 1 wherein secondary machining is performed on the forged gun frame or gun component.
- 4) The method of claim 1 wherein billet is homogenized prior to extrusion.
- 5) A method for producing a lightweight starting stock for gun frames and gun components comprising the following sequence:
 - a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
 - b. forging said billet to provide a gun frame or gun component,
 - c. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
 - d. quenching said gun frame or gun component to provide a quenched gun frame or gun component

- e. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.
- 6) The method of claim 5 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.
 - 7) The method of claim 5 wherein secondary machining is performed on the forged gun frame or gun component.
 - 8) The method of claim 5 wherein billet is homogenized prior to forging.
 - 9) A method for producing a lightweight starting stock for gun frames and gun components comprising the following sequence:
 - a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
 - b. extruding said billet to provide starting stock,
 - c. machining said starting stock to provide a gun frame or gun component,
 - d. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
 - e. quenching said gun frame or gun component to provide a quenched gun frame or gun component
 - f. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.
 - 10) The method of claim 9 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.
 - 11) The method of claim 9 wherein secondary machining is performed on the machined gun frame or gun component.
 - 12) The method of claim 9 wherein extruded starting stock is subjected to solution heat treatment, quenching, artificially aging and then subsequently machined.
 - 13) The method of claim 9 wherein billet is homogenized prior to extrusion.